REVIEW OF LITERATURE OF NUTRITION PACKAGE ON BLOOD PRESSURE, BODY MASS INDEX [BMI], WAIST CIRCUMFERENCE, BLOOD GLUCOSE LEVEL, GLYCEMIC INDEX [GI] AND QUALITY OF LIFE.

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ABSTRACT:

A well-functioning primary healthcare system has immense potential for improving global health outcomes due to its extensive coverage, cost-effectiveness, well-structured network of healthcare facilities, affordable technologies, socially and culturally acceptable intervention methods and broad community participation NCD prevention and management differ from that of acute conditions, where the primary healthcare approach has a powerful impact. Unlike acute conditions, NCD prevention and management require extended or even life-long healthcare support, early case detection, psychosocial promotion, risk factor identification, self-management, behavioral modifications, and regular medical support, such as adherence to medical procedures and treatment. The primary healthcare system is typically the first line contact for individuals seeking care, making it easier for patients to continue follow-up contacts. Therefore, it can be viewed as the most effective and appropriate mechanism for addressing NCDs. Dietary supplements (DSs) use has become a growing trend worldwide, and it may be affected by demographic and sociocultural factors. Foods in the MIND diet include 10 items that are rich in antioxidants, flavonoids, and anti-inflammatory compounds. Community and clinic-based screening, NCD care education, NCD specialized corner or hospital, and a follow-up system ensure patient satisfaction, accessibility, early detection, timely referral, and help to reduce disease severity, mortality rate, and incidence of the new disease.

Keywords: *Glycemic index**,** health, nutrition package,*

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INTRODUCTION

Primary healthcare is crucial for promoting essential healthcare services and achieving improved health outcomes, particularly in countries with resource-poor settings. Growing evidence shows that a well-functioning primary healthcare system has immense potential for improving global health outcomes due to its extensive coverage, cost-effectiveness, well-structured network of healthcare facilities, affordable technologies, socially and culturally acceptable intervention methods and broad community participation NCD prevention and management differ from that of acute conditions, where the primary healthcare approach has a powerful impact. Unlike acute conditions, NCD prevention and management require extended or even life-long healthcare support, early case detection, psychosocial promotion, risk factor identification, self-management, behavioral modifications, and regular medical support, such as adherence to medical procedures and treatment. The primary healthcare system is typically the first line contact for individuals seeking care, making it easier for patients to continue follow-up contacts. Therefore, it can be viewed as the most effective and appropriate mechanism for addressing NCDs.

The prevention and treatment of metabolic diseases, such as diabetes mellitus, cardiovascular disease, obesity, and the metabolic syndrome, are a global public health issue. By the year 2030, the global cost of managing diabetes is expected to reach USD 2.1 trillion. According to the International Diabetes Federation (IDF) Diabetes Atlas, the global prevalence of diabetes is expected to increase to 10.4% by 2040. Without adjusting for secular trends, the number of obese adults is expected to reach 573 million by 2030, and if the long-term trends continue unabated, the number of individuals with obesity is projected to total 1.12 billion. The global prevalence of metabolic syndrome is ~25%, meaning that >2 billion people worldwide are now affected. These common metabolic diseases involve disorders in multiple metabolic pathways, including insulin signaling, insulin secretion, glucose utilization, thermogenesis, mitochondrial function, and autophagy and are all related to obesity .

To lessen the impact of NCDs on individuals and society, a comprehensive approach is needed requiring all sectors, including health, finance, transport, education, agriculture, planning and others, to collaborate to reduce the risks associated with NCDs, and to promote interventions to prevent and control them. Investing in better management of NCDs is critical. Management of NCDs includes detecting, screening, and treating these diseases, and providing access to palliative care for people in need. High impact essential NCD interventions can be delivered through a primary health care approach to strengthen early detection and timely treatment. Evidence shows such interventions are excellent economic investments because, if provided early to patients, they can reduce the need for more expensive treatment.

While several countries are taking action to reduce population sodium/salt intake, additional efforts are needed to reduce the health consequences, particularly in low- and middle-income countries where the risk of death from raised blood pressure is more than double that in high-income countries. To further action and commitments towards achieving a 30% reduction in dietary sodium by 2025 and a reduction to 2000mg/day beyond 2025, WHO is developing guidance and technical tools to support the implementation of sodium reduction strategies.

38.5% thought that women aged 45–64 years were predominantly affected by NCD while only 4.5% thought that this was true for women at age 65 +. Most participants estimated the impact of cancer (90.9%), dementia (90.5%), CVD (85.1%), musculoskeletal (87.8%) and pulmonary diseases (79.2%) on QoL was at least moderate. The strongest impact on QoL was assigned to dementia with 53.4% rating its impact as maximal. In contrast, T2DM was estimated to have a lower impact on QoL as 83.2% rated its impact to range between “some” and “a lot”. Disease burden was rated significantly higher by younger and less educated women (supplementary table 1). Disease mortalities were asked to be ranked with also estimating the mean absolute numbers of death per 100 Swiss women. CVD were ranked as top killer accounting for 28.2 ± 12.9% of deaths, followed by cancer (25.8 ± 10.5%). Less than 10% of deaths were attributed to pulmonary diseases, T2DM, dementia and musculoskeletal diseases. When differentiating between participants who had only heard of the disease and those who were affected by it (e.g., personal or family history), the estimated mortality rate significantly differed for CVD and musculoskeletal diseases.

The BPLTTC meta-analysis findings suggest that a fixed degree of BP lowering is effective for both the primary and secondary prevention of major cardiovascular events, and that these benefits are seen even at BP levels that are below currently recommended thresholds for antihypertensive treatment initiation. In addition, drug treatment of hypertension should be considered for patients of all ages, and the removal of age-related BP thresholds from international treatment guidelines was recommended. The utility of antihypertensive drug therapy in older individuals is also highlighted by data showing that regimens designed to achieve intensive BP lowering tended to be more effective than standard BP-lowering treatment in trials of older patients with hypertension (age ≥70 years). Furthermore, BPLTTC data show that reducing BP is an effective strategy for

preventing new-onset type 2 diabetes mellitus in patients with hypertension, especially when treatment includes an ACE inhibitor or ARB.

The Women's Health Study conducted on health professional women showed that the relative risk of incident hypertension was significantly decreased with increasing amounts of low-fat dairy product intake, even after adjusting for major hypertension risk factors. Similar associations have been found in studies of the community-dwelling general population, such as the Rotterdam Study and Framingham Heart Study Offspring Cohort. Furthermore, a recent meta-analysis including 16 studies showed that a higher consumption of various dairy products is associated with a decreased risk of developing hypertension in adults. In addition, intervention studies have reported that the Dietary Approaches to Stop Hypertension (DASH) diet, which is rich in vegetables, fruits, and low-fat dairy products, is effective in achieving blood pressure reduction. All these reports suggest that increasing dairy intake may reduce the incidence of hypertension.

Weight loss is an essential part of the treatment in patients with obesity and asthma. A minimum of 5% total body weight loss is needed for significant improvement in the control of asthma. It is advisable to follow a well-balanced diet and a moderate exercise routine to maintain an optimum weight. At the same time, one must work on reducing stress levels and maintaining good sleep hygiene. Increased stress levels and poor sleep hygiene have also been implicated in weight gain and can lead to asthma. Exercise helps to release endorphins which in turn help to beat stress to a large extent.

The contribution of junk food which is causing the overweight. We have also done a principal component analysis which revealed that almost 53 per cent of overweight obesity is caused by unhealthy food consumption. studies show obesity is caused by the obesogenic environment due to sedentary activities and junk food consumption. High intake of junk food can also affect mental health and other organs of the body. Junk food majorly gives only energy, but not minerals and vitamins which required for brain development and growth.

Anthropometry is the most basic method for assessing body composition. It is an easy, economical, and effective method that is used in the initial screening of obesity, hypertension, and other metabolic disorders. Several indices such as body mass index (BMI), waist circumference (WC), waist-to-hip ratio (WHR), and waist-to-height ratio (WHtR) are used to classify obesity. WHtR and WHR are better measures of visceral and abdominal fat distribution. On the other hand, some studies also reported that WC and WHR is a better indicator of cardiovascular disease (CVD) risk than BMI and WHR. however, a high WHR has been identified as an increasing risk factor of dyslipidemia, hypertension, CVD, and diabetes mellitus as compared with BMI. BMI is widely used to describe total or general obesity while WC, WHR, and WHtR describe more visceral fat, abdominal or centralized obesity. So, BMI, WC, WHtR, and WHR are simple and valid anthropometric measures for the assessment of obesity and risk of hypertension.

Excess adiposity is commonly measured through anthropometric methods and expressed as BMI, a value derived by dividing a person's weight by their height and expressed in units of kg/m2. Although BMI does not provide a direct measure of adiposity, it is recognized as a practical approach in clinical or surveillance settings (6–9), as height and weight measurements are non-invasive and do not require specialized skills or expensive equipment. Cut-offs used to determine overweight (including obesity) (≥ 25 kg/m2) and obesity (≥ 30 kg/m2) are age- and sex-independent for adults and have been found to be associated with health outcomes, including mortality.

Measurements of waist circumference, including waist-to-hip ratio, act as a proxy for abdominal fat mass (19,20) and show a similar association with future morbidity and mortality as BMI. Changes in waist circumference correlate with changes in the risk of obesity-related comorbidities, particularly CVD, with which it is associated independently of BMI (21–25). Commonly used cut-offs for waist circumference are sex-specific and lower for women, who show increased risk of CVD and other comorbidities at lower waist circumference than men (26,27). In addition, WHO suggests combining BMI and waist circumference based on evidence that the combination of the two is a better predictor of future health risk (6,27).

The NSS data showed that 50–70% of those who suffered from NCDs sought treatment from private health facilities all over India. However, there was state wise variation in the choice of health facilities. Maharashtra, Andhra Pradesh, Karnataka, Telangana, Gujarat, and Punjab reported about 70–80% use of private facilities. The North-Eastern states reported more use of public health facilities for treatment with Meghalaya and Sikkim reporting the least (58%) and Arunachal Pradesh reporting the highest (92%). Chandigarh and Andaman and Nicobar Islands also reported more use of public health facilities. Rest of the states reported higher usage of private facilities for treatment of NCDs.[11]

We aimed to investigate the effects of a low-glycemic index (GI) diet on the body mass and blood glucose of patients with four common metabolic diseases by conducting a systematic review and meta-analysis of studies

comparing a low-GI diet (LGID) and other types of diet. Search terms relating to population, intervention, comparator, outcomes, and study design were used to search three databases: PubMed, Embase, and the Cochrane Library. We identified 24 studies involving 2002 participants. Random-effects models were used for 16 studies in the meta-analysis and stratified analyses were performed according to the duration of the intervention. The systematic review showed that LGIDs slightly reduced body mass and body mass index (BMI) ($p < 0.05$). BMI improved more substantially after interventions of >24 weeks and there was no inter-study heterogeneity ($I^2 = 0\%$, $p = 0.48$; mean difference (MD) = −2.02, 95% confidence interval (CI): −3.05, −0.98). Overall, an LGID had superior effects to a control diet on fasting blood glucose (FBG) and glycosylated hemoglobin. When the intervention exceeded 30 days, an LGID reduced FBG more substantially (MD = −0.34, 95% CI: −0.55, −0.12). Thus, for patients with metabolic diseases, an LGID is more effective at controlling body mass and blood glucose than a high-GI or other diet.[12]

Non-communicable diseases (NCDs) are responsible for 74% of global deaths and contributed to significant disabilities, worsening health-related quality of life (HRQoL). In NCDs, poor medication adherence, social support, patient-physician relationship, and health literacy decrease HRQoL. Unfortunately, there is a shortage of literature examining the predictors of HRQoL among patients with different types of NCDs.[16]

Diets are tough, trendy, and controversial. Every day, a new diet trend hits the internet. You will find no dearth of diets that promise to address your health goals. While there are many fads, most lack scientific evidence, are quick-fix regimens and do not address the wholesome nutrition needs. Let's check out some popular diet fads from 2021 and how to avoid them by adopting a wholesome, balanced, sustainable eating habit.[10]

It is that nutrition and diet play a central role in the development and prevention of chronic diseases. There is a continuous need to carry out epidemiological studies since the exposure (nutritional factors), host (people, their life trajectories), and effect modifiers (social and environmental exposures, food manufacturing) are continuously changing. Also, outcomes are changing continuously as I have experienced during my short research career of a few decades; the major public health issues have changed from CVD to T2D and obesity and emerging impairment of cognition.

Recent studies of low- and middle-income countries with DBM have revealed that children and adults in the poorest income quintile face a greater prevalence of overweight and obesity than do those in higher income quintiles. These increases in overweight/obesity are largely the result of rapid, increased availability and consumption of ultra-processed foods across all sections of society. The food and beverage industry in India is one of the world's largest with a sales volume of 34 million tons. Studies have shown that in Indian households – both urban and rural, 53% of children consume salted packaged food such as chips and instant noodles, 56% consume sweet, packaged food such as chocolates and ice cream and 49% children consumed sugar-sweetened packaged beverages at an average of over twice a week. Experts have raised alarm that unhealthy diet is responsible for more deaths worldwide than any other risk factor, and is a leading cause of obesity, type 2 diabetes, and cardiovascular disease.

Studies have shown that a combination of genetic, physiological, environmental, and behavioral factors are involved in the development and progression of NCDs. Tobacco use, and harmful use of alcohol, physical inactivity, and unhealthy diets increase a person's risk of dying from an NCD. Global health organizations have identified effective methods of diagnosis, screening, and treatment as the critical components in responding to this condition in addition to palliative care. Unhealthy diets, mainly excessive sodium intake, are attributed to 4.1 million deaths each year. Over half of the total 3.3 million deaths linked with alcohol use are from NCDs. Finally, insufficient physical activity is attributed to 1.6 million deaths each year.

Patients who transitioned to a non-meat diet went on to exhibit reduced gut microbial levels of *gbuA.* Taken together, this suggests that dietary modifications may help reduce diet- and TMAO- associated cardiovascular disease risk. Likewise, the role of the *gbuA* gene cluster may be worth exploring as a potential therapeutic target."

There are numerous studies and research which have linked intake of junk food to the early onset of Non-communicable diseases like Diabetes, BP and more. Problems with this junk is that it is low in society, so one tends to binge eat and hence it has started replacing healthy food made with nutritious fresh ingredients. There are numerous studies and research which have linked intake of junk food to the early onset of Non-communicable diseases like Diabetes, BP, cardiovascular diseases and cancers.

Dietary supplements (DSs) use has become a growing trend worldwide, and it may be affected by demographic and sociocultural factors. Some people use supplements with the thought that they can improve their health, reduce symptoms and prevent disease. The use of dietary supplements has become a growing trend worldwide, and it may be affected by demographic and sociocultural factors. Still, studies about the use of dietary supplements in Iran are limited, and there is not enough information about dietary supplement consumption status in the north of Iran. To the best of our knowledge, this is the first study to investigate the

consumption of commonly available dietary supplements and their association with socioeconomic factors in participants with selected main NCDs (diabetes, CVD, hypertension (HTN), cancers, obesity, and central adiposity) in the north of Iran.

Foods in the MIND diet include 10 items that are rich in antioxidants, flavonoids, and anti-inflammatory compounds. The major food groups in this diet are whole grains such as oats, quinoa, whole wheat pasta and 100% whole-wheat bread. Along with these, Indians can include millets such as jowar, bajra, ragi as the preferred choice of whole grains. Beans, lentils, and soybeans are recommended at least four times in the MIND diet and in India, we have an abundance of these foods. Beans and lentils are rich in fibre, B vitamins and antioxidants that are proven to be potential brain health promoting nutrients. Antioxidant nutrients in the MIND diet may promote optimum brain health and prevent multiple neurodegenerative diseases. Further research will provide more insight into the MIND diet's benefits. While the diet does not adhere to the standard Indian diet, a variety of staples can be included to tailor it to Indian eating habits.

CONCLUSIONS

This systematic rapid review aims to highlight the available approaches to improve QoC in NCD services in South Asian countries. Three electronic databases (Medline, Embase, and the Cochrane Library) were used to identify relevant literature. Studies published from January 1, 1990, to December 31, 2020, were included. Among 829 identified studies, 13 were included in the review for in-depth analysis. Most of the studies focused on cancer followed by diabetes and cardiovascular disease. Community and clinic-based screening, NCD care education, NCD specialized corner or hospital, and a follow-up system ensure patient satisfaction, accessibility, early detection, timely referral, and help to reduce disease severity, mortality rate, and incidence of the new disease.

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